



**Remediation Weekly Activity Summary Report  
Ameren Columbia MGP - Remedial Action**

**Project Week No.:** 30  
**Period:** 8/4 - 8/8/2014  
**Completed By:** Dave Pluhar

**PSC Project Number:** 624-1302-0002

**General Field Activities Completed: Week Ending August 8**

The backfilling of the Phase IV excavation area was completed on August 4. Excavation at the southwestern extent of the Phase V excavation area began on August 4 and continued for the balance of the week. The gas mains and valves associated with gas holder No. 3 were encountered and removed in the excavation area. The southern end of the gas holder No 3 slab foundation was also removed as the excavation progressed.

**General Field Activities Planned: Week Ending August 15**

The Phase V excavation at the northern end of the Site removal area will be completed; final soil confirmation soil samples will be collected. The backfilling of the Phase V excavation area will begin. Carbon Activated will mobilize a crew and equipment to the Site on August 14 to remove the carbon from the four air handlers. The air handler carbon will be bagged by Carbon Activated for return shipment to their facility for regeneration. Burns & McDonnell will conclude the site air monitoring program on August 14.

**Air Monitoring Summary: Week Ending August 8**

Phase 4 Remediation phase real-time and time-averaged ambient air monitoring activities continued through the Week 30. No exceedances of the real-time action levels were recorded. Real-time dust concentrations for Week 30 were below action levels at the perimeter of the property. Odors were observed intermittently at the perimeter of the site during Week 30. In total, 36 time-averaged, 72-hour air sample events were collected, including baseline, as of August 8th from five perimeter air stations. Time-averaged samples were shipped to Con-Test Analytical Laboratory for analysis. PM10, PAH, and VOC time-averaged analytical data has been received for sampling events up to July 28, 2014. Time-averaged PM10, naphthalene and benzene concentrations are below the acceptable concentrations of 150 µg/m3, 4.1 µg/m3 and 41.5 µg/m3, respectively. Phase 4 Remediation phase real-time and time-averaged ambient air monitoring activities will continue through Week 31 in accordance with the Ambient Air Monitoring Plan.

**Weekly Project Meeting Summary: August 7, 2014**

Work Update: The Phase IV excavation area backfilling was completed on August 4. EOI began excavating the Phase V area on August 4 also. EOI expects to complete the Phase V excavation next week on Tuesday or Wednesday at the latest. Burns & McDonnell will continue the site air sampling and monitoring program through Thursday, August 14. It is assumed that by the 14th the Phase V excavation backfill will be well underway and most impacted soil not removed in the sidewalls will be covered with clean fill. The west temporary structure anchoring footing located in the Orr Street Right-of-Way must be removed according to the City Planning/Building Inspection Department. The response about items in the Right-of-Way and the final fence arrangements were provided by Doug Kenney. The western site fence must be moved back onto the Ameren property, but no requirements regarding the fence design other than a maximum height (of 12-feet) were provided by the City. EOI will revise the fence location after completing site grading; the gate at Orr and Park will be eliminated. Carbon Activated is scheduled to be onsite on August 14 and 15 to remove the carbon from the four air handlers. The air handler carbon will be rebagged and shipped offsite on August 18 and 19. EOI expects that the backfilling and surface grading will continue during the week of August 18 - 22. EOI is projecting that the final surface grading and storm water inlet structure installation work will be completed during the last week of August (25 - 29). PSC will schedule the removal of the air handlers for the end of Week 32 (August 21 - 22). PSC will schedule J & F to return to dismantle the air monitoring network electric power supply for the last week of August. The Burns & McDonnell field office will also be scheduled for pickup during the last week of August. EOI plans to clean the remaining waste water treatment system components during the week of August 18 - 22. EOI is still expecting to wrap-up site demobilization during the first week of September.



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Material Log									
Material Type:			Actual Quantities						
	Prior Total:	This Period:	Total To Date:	Phase One	Phase Two	Phase Three	Phase Four	Phase Five	Est. Totals
<b>Solid Waste Material:</b>									
Soil Waste to Allied Waste, Jefferson City, MO (tons)	28667.37	1286.57	29953.94	12155.43	5699.33	8634.32	2178.29	1286.57	31500.00
C & D Waste to Allied Waste, Jefferson City, MO (tons)	725.30	0.00	725.30	169.38	555.92	0.00	0.00	0.00	725.00
MGP Remediation Waste to PDC (tons)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total All Disposal (tons)	29392.67	1286.57	30679.24	30679.24	6255.25	8634.32	2178.29	1286.57	32225.00
<b>Clean Material:</b>									
Soil Backfill (tons)	0.00	0.00	0.00	0.00	0.00	0.00			---
1/4-inch Stone (tons)	0.00	0.00	0.00	0.00	0.00	0.00			---
Sand (tons)	0.00	0.00	0.00	0.00	0.00	0.00			---
Rip-Rap (tons)	3034.17	0.00	3034.17	1172.64	1405.79	455.74	0.00	0.00	---
Type 1 Aggregate (tons)	23612.74	691.34	24304.08	11383.23	4092.76	6599.71	2228.38	0.00	---
Type 5 Aggregate (tons)	0.00	0.00	0.00	0.00	0.00	0.00			---
One-inch Clean Stone	161.14	0.00	161.14	0.00	161.14	0.00			---
	0.00	0.00	0.00						---
	0.00	0.00	0.00						---
	0.00	0.00	0.00						---
	0.00	0.00	0.00						---
<b>Treated Wastewater:</b>									
Discharged to Columbia Regional WWTP	296169	0	296169						---
Disposed (other)	0	0	0						---
<b>Trucks Transporting:</b>									
	Monday	Tuesday	Wed	Thursday	Friday	Comments			
Disposal	2	4	5	4	4	118.26 tons of limestone screenings delivered this week (94.08 tons Thursday and 24.18 tons Friday)			
Backfill	1	0	0	0	0				



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**Sample Collection Summary:****Soil Samples:****Actual Quantities****Project Estimates**

Prior Total:	This Period:	Total To Date:	Original:	Revised:
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VOCs (5035/8260)	180	6	186	180	200
SVOCs (8270)	180	6	186	180	200
Metals (arsenic, lead, selenium)(6010)	180	6	186	180	200
Cyanide, total/amenable (9012)	180	6	186	180	200
Per-cent moisture (D-2974)	180	6	186	180	200
pH (9045)	180	6	186	180	200
TPH GRO (8260)	180	6	186	180	200
TPH DRO (8270)	180	6	186	180	200
Reactice Cyanide	0	0	0	10	---
Reactive Sulfide	0	0	0	10	---
TCLP Benzene	0	0	0	10	---
TCLP RCRA Metals	0	0	0	10	---

**Wastewater Samples:**

Ammonia as Nitrogen (EPA 350.1)	10	0	10	25	10
Total arsenic (EPA 200.8)	10	0	10	25	10
Total barium (EPA 200.8)	10	0	10	25	10
Benzene (EPA 624)	10	0	10	25	10
BOD5 (5210)	10	0	10	25	10
Total boron (EPA 200.7)	10	0	10	25	10
Total cadmium (EPA 200.8)	10	0	10	25	10
Total hexavalent chromium (EPA 218.6)	10	0	10	25	10
Total chromium (EPA 200.8)	10	0	10	25	10
Total copper (EPA 200.8)	10	0	10	25	10
Cyanide (SM4500 CN-1)	10	0	10	25	10
Total iron (EPA 200.9)	10	0	10	25	10
Total lead (EPA 200.8)	10	0	10	25	10
Total mercury (EPA 200.8)	10	0	10	25	10
Total nickel (EPA 200.8)	10	0	10	25	10
Oil & Grease (1664)	10	0	10	25	10
pH (4500-HB)	10	0	10	25	10
Phenols (420.2)	10	0	10	25	10
Total silver (EPA 200.8)	10	0	10	25	10
Total Suspended Solids ((2540-D)	10	0	10	25	10
Total toxic organics (EPA 624 & 625)	10	0	10	25	10
Total zinc (EPA 200.8)	10	0	10	25	10



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		Projected Dates		Actual Dates	
General Site Set-up		Start	Complete	Start	Complete
	Field Offices Established - 15 days	12/9/2013	1/10/2014	1/7/2014	1/13/2014
	Perimeter Fence & Gates Revised - 3 days	12/9/2013	12/13/2013	12/12/2013	12/13/2013
	Air Monitoring Stations Established - 2 days	12/19/2013	12/20/2013	12/19/2013	12/20/2013
	Baseline Air Sampling Completed - 6 days	12/30/2013	1/4/2014	12/30/2013	1/4/2014
	WWPT System Assembled - 5 days	1/13/2014	1/17/2014	1/15/2014	1/17/2014
	Traffic Control Plan Signs Installed - 1 day	1/6/2014	1/6/2014	1/7/2014	1/7/2014
Ameren Office Building Demolition		Projected Dates		Actual Dates	
	Asbestos Abatement - 3 days	11/12/2013	11/15/2013	11/12/2013	11/15/2013
	Contents Disposal - 1 day	12/17/2013	12/17/2013	12/17/2013	12/17/2013
	Structure Demolition - 3 days	1/8/2014	1/10/2014	1/13/2014	1/15/2014
	Debris Disposal - 2 days	1/9/2014	1/10/2014	1/15/2014	1/16/2014
Phase One Excavation		Projected Dates		Actual Dates	
	Phase One Excavation	1/17/2014	2/26/2014	1/17/2014	2/26/2014
	Phase One Backfilling	1/27/2014	3/7/2014	1/30/2014	3/6/2014
Sewer Replacement		Projected Dates		Actual Dates	
	Pre-Cast Fabrication	2/17/2014	3/12/2014	2/17/2014	3/12/2014
	Staking	3/3/2014	3/4/2014	3/7/2014	3/7/2014
	Contractor Mobilization	3/5/2014	3/7/2014	3/10/2014	3/10/2014
	Existing Culvert Demolitions	3/10/2014	3/12/2014	3/12/2014	3/14/2014
	Excavation & Subgrade Prep	3/13/2014	3/19/2014	3/11/2014	3/14/2014
	West Junction Excavation	3/13/2014	3/14/2014	3/12/2014	3/14/2014
	Install Pre-Cast Sections	3/20/2014	4/2/2014	3/20/2014	3/21/2014
Phase Two "A" Excavation		Projected Dates		Actual Dates	
	Phase Two Excavation	3/10/2014	3/21/2014	3/7/2014	4/1/2014
	Phase Two Backfilling	3/24/2014	4/4/2014	4/2/2014	4/8/2014
	Old Culvert Demolition	4/3/2014	4/23/2014	3/10/2014	4/11/2014
Phase Three Excavation		Projected Dates		Actual Dates	
	Temporary Structure Assembled - 12 days	4/29/2014	5/9/2014	5/5/2014	5/17/2014
	Ventilation System Assembled - 10 days	5/7/2014	5/20/2014	5/5/2014	5/16/2014
	Temporary Structure Permit Received - 1 day	5/8/2014	5/8/2014	4/11/2014	4/11/2014
	Structure Inspection Completed - 1 day	5/16/2014	5/16/2014	5/17/2014	5/17/2014
	Phase Three Excavation	5/15/2014	7/15/2014	5/21/2014	6/18/2014
	Phase Three Backfilling	6/11/2014	7/3/2014	6/11/2014	7/3/2014
	Structure Disassembled - 10 days	7/8/2014	7/18/2014	7/8/2014	7/12/2014
	Ventilation System Removed	7/14/2014	7/18/2014	7/8/2014	7/9/2014
	Air Handlers Shipped	8/21/2014	8/22/2014		
	Structure Components Shipped	7/21/2014	7/24/2014	7/10/2014	7/12/2014
Phase Four Excavation		Projected Dates		Actual Dates	
	Phase Four Excavation	7/21/2014	8/1/2014	7/21/2014	7/29/2014



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		Projected Dates		Actual Dates	
Phase Five Excavation		Start	Complete	Start	Complete
	Phase Five Excavation	8/4/2014	8/13/2014	8/5/2014	
	Phase Five Backfilling	8/14/2014	8/19/2014		
Site Restoration					
	Final Site Surface Grading	8/25/2014	8/29/2014		
	Final Site Surface Repair	8/25/2014	8/29/2014		
	Site Fence Revisions Completed	8/25/2014	8/29/2014		
Site Demobilization					
	Excavation Equipment Demobilized - 2 days	9/3/2014	9/4/2014		
	WWPT System Removed - 2 days	8/25/2014	8/26/2014		
	LP Tank Removed - 1 day	9/2/2014	9/2/2014		
	Traffic Control Signage Removed - 1 day	8/29/2014	8/29/2014		
	Sidewalk Reopened - 1 day	8/29/2014	8/29/2014		
	Utilities Disconnected - 2 days	9/2/2014	9/3/2014		
	Facilities Removed - 2 days	9/3/2014	9/4/2014		
	Pac-Van Office Demobilized - 1 day	9/4/2014	9/4/2014		



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Backfilled  
Open Excavation



TITLE:

REMEDIATION EXTENTS  
PHASE I, II, III & IV  
AS OF AUGUST 1, 2014

DWN:

MST

CHKD:

DATE:  
8/1/14

DES.:

APPD:

REV.:

PROJECT NO.:

COLUMBIA MO  
MGP

WEEK 29



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X CONFIRMATION SAMPLE LOCATION



TIT 1 P1

CONFIRMATION SAMPLE LOCATIONS  
PHASE I, II, III, & IV  
AS OF AUGUST 1, 2014

DWN:

MST

CHKD:

DES.:

APPD:

DATE:

8/1/14

REV.:

PROJECT NO.:

COLUMBIA MO  
MGP

WEEK 29





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**Backfilling in Phase IV continues. Completed on 8/4/14.**



**Phase V open excavation started in southwest corner of proposed excavation extent.**





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**Pipe uncovered ~3 ft bgs in C9/10, appears to be MGP related connected to above ground gas holder**



**Valve box and concrete pad encountered under former above ground gas holder**



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**COAL encountered @ ~15-16ft bgs in C10/9**



**Limestone Screenings used to solidify saturated material**





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**Excavation moving eastward in Phase 5 (northern limit reached)**



**Phase V excavation; top of coal on the western wall.**



**WEEK 30 - REAL-TIME AIR MONITORING SUMMARY**  
**Ameren Services - Columbia FMGP**

<b>Downwind Real-Time PM<sub>10</sub> Concentrations</b>				
PM <sub>10</sub> Action Level: 0.15 mg/m <sup>3</sup>				
Week 30	Date	Daily High (mg/m <sup>3</sup> )	Daily Low (mg/m <sup>3</sup> )	Daily Average (mg/m <sup>3</sup> )
	8/4/2014	0.056	0.017	0.036
	8/5/2014	0.064	0.029	0.045
	8/6/2014	0.077	0.054	0.068
	8/7/2014	0.048	0.003	0.019
	8/8/2014	0.050	0.021	0.038

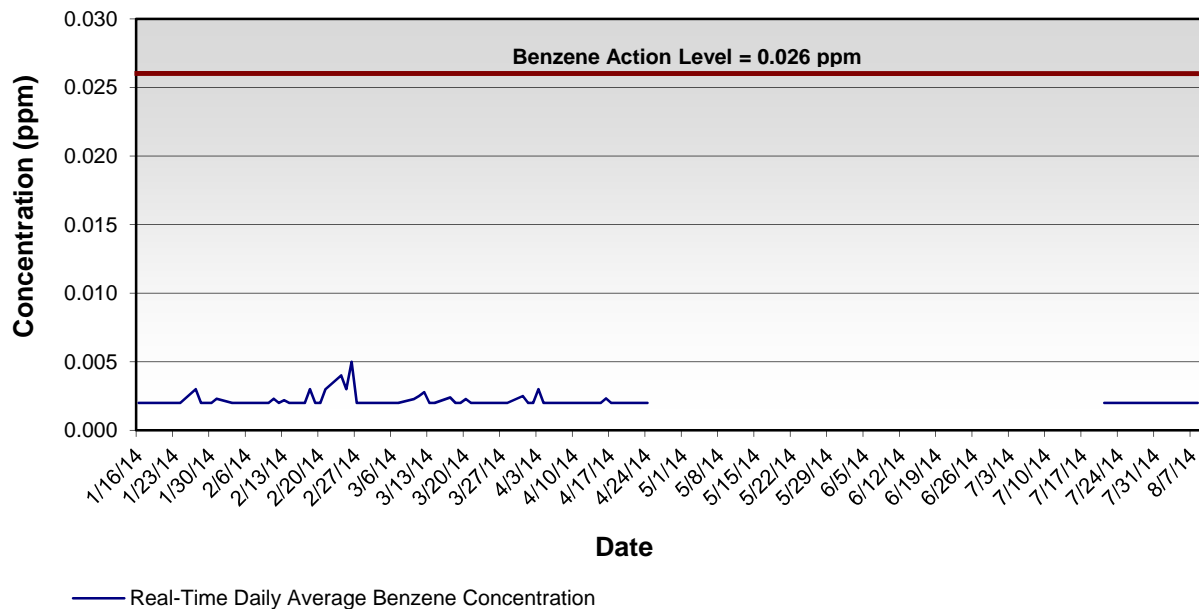
<b>Open Air Excavation Real-Time Benzene Daily Concentrations</b>						
Benzene Action Level: 0.026 ppm						
Week 30	Date	Upwind		Downwind		Daily Average (ppm)
		Daily High (ppm)	Daily Low (ppm)	Daily High (ppm)	Daily Low (ppm)	
	8/4/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	8/5/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	8/6/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	8/7/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	8/8/2014	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)

Non-detect = 0.002 (Detection Limit is 0.002)

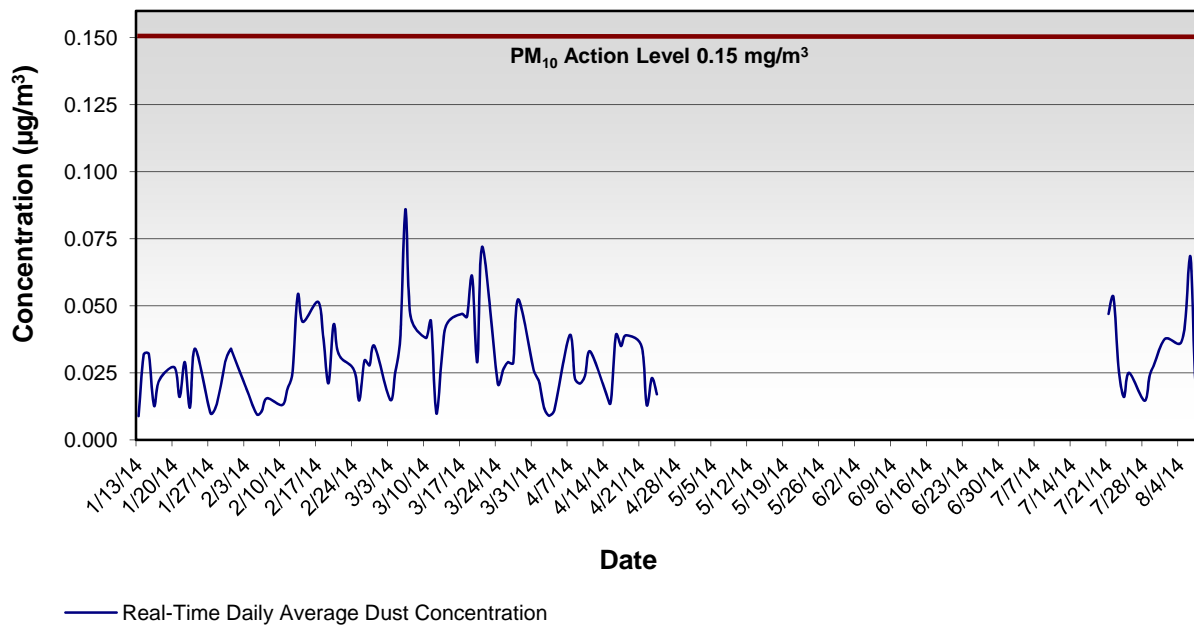
## WEEK 30 - REAL-TIME AIR MONITORING SUMMARY

### Ameren Services - Columbia FMGP

#### REAL-TIME DAILY AVERAGE BENZENE GRAPH



#### REAL-TIME DAILY AVERAGE PM<sub>10</sub> GRAPH

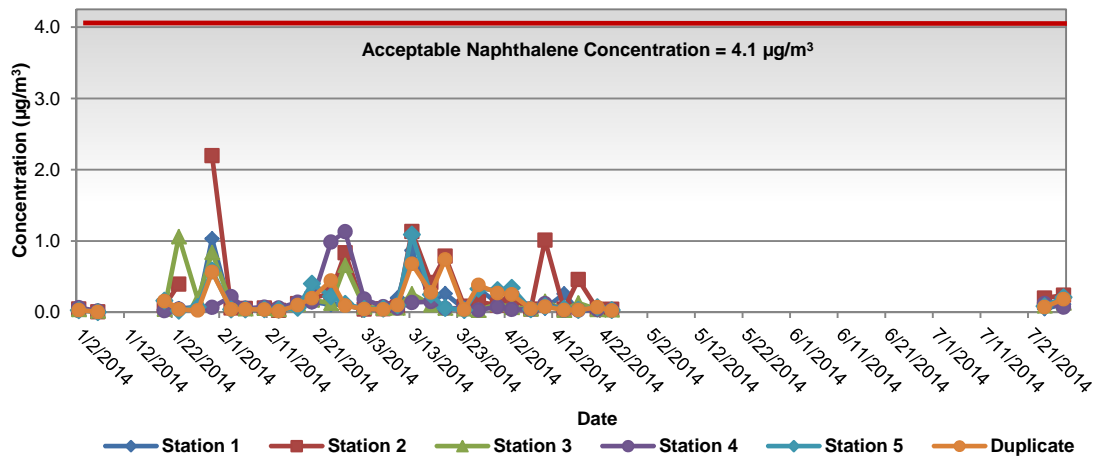


- Note: 1) Each data point represents the real-time daily average benzene or PM<sub>10</sub> concentration obtained during perimeter air monitoring.  
 2) Acceptable Concentrations are as defined in the Ambient Air Monitoring Plan, Former Manufactured Gas Plant, Columbia, Missouri prepared by Burns & McDonnell dated November 2013.

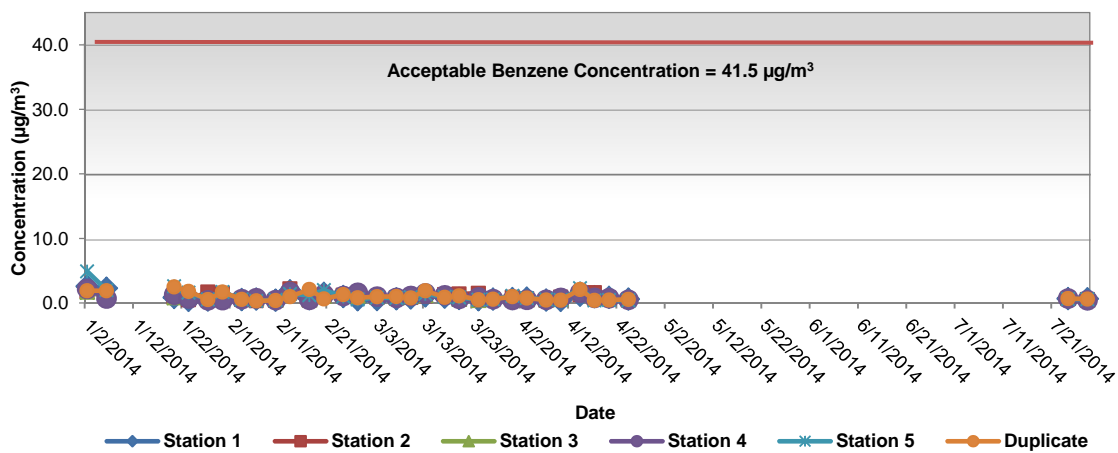


## WEEK 30 - TIME-AVERAGED AIR MONITORING RESULTS Ameren Services - Columbia FMGP

TIME-AVERAGED NAPHTHALENE VS. TIME



TIME-AVERAGED BENZENE VS. TIME



TIME-AVERAGED  $\text{PM}_{10}$  VS. TIME

